

Response to 'A call record of the Southern Barred Frog *Mixophyes balbus* from East Gippsland'

by Urlus and Marr

Reliable, contemporary records of threatened and/or rare species are of immense value to conservation managers. Resources available to survey for and manage threatened species are always scarce, and it is critical that the best use is made of these resources. Verifying supposed or dated records of threatened species is important, and considerable resources are frequently expended on these quests. This expenditure is wasteful when field surveys are based on spurious records. Such records also create unnecessary 'noise' in the literature and in planning and management documents, such as National Recovery Plans and Victorian Action Statements prepared under the *Flora and Fauna Guarantee Act 1988*.

The threatened Southern Barred Frog *Mixophyes balbus* historically occurred along the eastern slopes of the Great Divide from eastern Victoria near the border of New South Wales, through coastal New South Wales to the south-east extremity of Queensland. Alarming declines have been reported for this species throughout its range (Gillespie and Hines 1999).

Urlus and Marr (2011) report a 'probable record' (p. 272) of this species along the Thurra River in far eastern Victoria. If accurate, this record would be of great note because it has been 30 years since a verified record of this species has occurred in Victoria. The record reported by Urlus and Marr is a little over 20 kilometres from existing historic records (confirmed by voucher specimens) of this species in Victoria, but occurred in habitat that, according to current knowledge, is atypical for this species.

Male *M. balbus* call during spring and summer from beside streams. Metamorphosis of tadpoles occurs from December to March. Urlus and Marr heard what they believed was the call of *M. balbus* in late March 2011, based

upon comparison to a tape recording produced by Professor Murray Littlejohn (Department of Zoology, University of Melbourne). Despite searching, they were unable to find the calling frog and no surveys were undertaken for tadpoles, which is generally regarded as the best method for detecting this species (D Hunter pers. comm.; see Gillespie 2011). The Blue Mountains Tree Frog *Litoria citropa* is known to make an atypical, infrequent call in March and April, outside of its typical breeding season; this call is notably similar to that of *M. balbus*, and has misled experienced frog biologists in the past (G. Gillespie pers. obs.; D. Hunter pers. comm.). *Litoria citropa* is abundant along the Thurra River (G. Gillespie pers. obs.). During a subsequent visit to this site by Urlus and one of us (GG) a tadpole survey was undertaken, which yielded specimens of *L. citropa* and the Leaf Green Tree Frog *L. nudidigitus* (but no *M. balbus*).

Urlus and Marr describe the habitat at the site of their claimed record, and label it 'potentially suitable habitat' (p. 274); however, they do not explain this putative 'suitability', nor compare the habitat at this site to the habitat where confirmed records have been generated. The habitat of *M. balbus* is characterised as shallow, stony streams in sheltered, steep-sided valleys, usually with closed forest canopy (Gillespie and Hines 1999; Cogger 2000; Anstis 2002). The stony stream bed is a critical element of the species' habitat as it lays its eggs in nests made in shoals of stones and gravel (Anstis 2002; G. Gillespie pers. obs.). Whilst leaf packs have also been reported to be used for egg nests for some *Mixophyes* species (Knowles *et al.* 1998), *M. balbus* invariably deposits eggs in very shallow water amongst emergent stones and rocks in the stream-bed (G. Gillespie pers. obs.). Inspection of the habitat at the Thurra River site during the site visit led us to conclude that

none of these habitat elements are present in the general vicinity of the reported observation (G Gillespie pers. obs.). The Thurra River is a relatively deep (> 50 cm), sandy-bottomed stream with no stones or gravel bars, meandering across a wide, flat terrace. Streams along which *M. balbus* has been reliably recorded are typically in sheltered, steep-sloped valleys, rather than wide flat terraces (G Gillespie pers. obs.). Although some rainforest plant species are present in the riparian zones of Thurra River in this area, apart from Kanooka Trees *Tristanopsis laurina* along the banks, the rainforest species are restricted to the understorey. Unlike typical habitat for this frog, the canopy is not dense or closed, but open eucalypt. *Mixophyes balbus* has never been reliably recorded in this type of habitat, and no breeding microhabitat is available at this location.

Numerous doubtful records of threatened herpetofauna in Victoria are reported each year (N. Clemann pers. obs.), and further investigation shows that many are erroneous. Publication of such records, or their inclusion in fauna databases, creates 'noise' in the faunal record, and can lead to spurious leveraging of species distribution models. Such models are increasingly being used to highlight likely distributions of species and inform conservation priorities. Whilst it is not out of the question that *M. balbus* might persist in Victoria (Gillespie 2011), we consider that the record reported by Urlus and Marr is highly doubtful for the reasons outlined above. The publication of doubtful, unverified records is potentially misleading, and may lead to unnecessary expenditure, particularly as Urlus and Marr suggest that the areas they surveyed 'warrant further investigation' (p. 274). In order to avoid unnecessary expenditure of resources, such further investigation is best done prior to publication of the record. Publication is warranted upon confirmation of the suspected record.

Ad hoc reports of rare, threatened or poorly known species are obviously extremely valuable and their publication should be encouraged. However, their value is undermined when they are not adequately verified. We suggest that records such as this should only be published once properly substantiated. In the case of rare and cryptic amphibians, such substantiation necessitates collection of voucher specimens, diagnostic photos and/or call recordings of adults and/or tadpoles.

Acknowledgements

We thank John Koehn and Lindy Lumsden for suggestions that improved this note.

References

- Anstis M (2002) *Tadpoles of South-eastern Australia: guide with keys*. (Reed New Holland: Sydney)
- Cogger HG (2000) *Reptiles and Amphibians of Australia*. 6 Edn. (Reed New Holland: Sydney)
- Gillespie GR (2011) Survey for the Southern Barred Frog *Mixophyes balbus* in Victoria. Unpublished report to the Department of Sustainability and Environment, Orbost, Victoria.
- Gillespie GR and Hines HB (1999) The current status of temperate riverine frog species in south-eastern Australia. In: *Declines and Disappearances of Australian Frogs*, pp. 109–130. Ed A Campbell (Environment Australia: Canberra)
- Knowles R, Hines HB, Thum K, Mahony M and Cunningham M (1998) Oviposition of the barred-frogs (*Mixophyes* species) in south-eastern Australia with implications for management. Unpublished abstract of a talk presented to the Australian Society of Herpetologist Meeting, February 1998.
- Urlus J and Marr R (2011) A call record of the Southern Barred Frog *Mixophyes balbus* from East Gippsland. *The Victorian Naturalist* **128**, 272–275.

Nick Clemann

Arthur Rylah Institute for Environmental Research,
Department of Sustainability and Environment,
PO Box 137, Heidelberg, Victoria 3084

Graeme Gillespie

Zoology Department,
University of Melbourne Victoria, 3010